THE FOLLOWING IS A LISTING OF THE CURRENTLY PENDING CLAIMS:

1-135 (Canceled)

136.(New) A method of determining a concentration of an analyte in a small sample volume, the method comprising steps of:

contacting the sample with a fiber optical sensor comprising a working membrane, a solid support holding the membrane and a light conducting means, wherein the working membrane is sized to react with less than1 microliter of sample;

applying a source light to the working membrane;

measuring reflected light by the sensor working membrane at a plurality of times while portion of the analyte is being oxidized; and

determining, by photoelectricity, a concentration of the analyte in the sample using the measured current or voltage.

137.(New) The method of claim 136, wherein the step of determining, by photoelectricity, a concentration of the analyte comprises extrapolating a reflectance based on the measured light intensity.

138.(New) The method of claim 137, wherein the step of determining, by photoelectricity, a concentration of the analyte further comprises determining, from the light reflectance of the measurement zone, a color change oxidation reaction necessary to oxidize at least 95% of the analyte in the sample in the measurement zone, and correlating the reflectance with the concentration of the analyte in the sample.

139. (New) The method of claim 138, wherein the step of determining, from the reflectance, a color change oxidation reaction to oxidize at least 95% of the analyte in the sample in the measurement zone comprises measuring the light intensity to determine the reflectance.

140. (New) The method of claim 136, wherein the step of contacting the sample with a photoelectric sensor comprises contacting the sample with a photoelectric sensor comprising an optical fiber comprising at least one fiber, a first and second end and a first diameter, said first end receiving a light from the photometrical detector for transmission through said at least one fiber to said second end;

a working membrane comprising a flat membrane material impregnated with a dried reagent solution that comprises optical properties that change with the quantity of the analyte, said flat membrane material cut in a circular shape with a second diameter matching said first diameter and further comprising a first flat surface for contacting the sample volume and a second flat surface, wherein a size of the sample volume required for testing can be minimized; and

means for bonding said second side to said second end where said light impinges on said second side and a reflected light indicating changes in said optical properties is effectively returned through said at least one fiber to the photometrical detector where the quantity of the analyte in the minimized size of the sample volume can be measured.

141. (New) The device as recited in claim 140, wherein said first end is removably inserted into a detection slot of the photometrical detector and the test tip device is disposable.

142. (New) The device as recited in claim 140, wherein said first and second ends are polished.

143. (New) The device as recited in claim 140, wherein said change in optical properties is a color change.

144.(New) The device as recited in claim 140, wherein said flat membrane material further comprises a uniformly porous hydrophilic membrane.

145. (New) The device as recited in claim 140, wherein said reagent solution further comprises oxidase/peroxidase enzymes.

146. (New) The device as recited in claim 140, wherein the minimized size of the sample volume can be measured in an in vitro blood glucose self-monitoring system.

147. (New) The method of claim 136, wherein the step of contacting the sample with a photoelectric sensor comprises contacting the sample with a photoelectric sensor comprising a test tip device for a photometrical detector used for measuring a quantity of an analyte in a sample volume, the device comprising:

a micro tube comprising a first open end, second end and a first diameter, said first open end receiving an optical probe from the photometrical detector where the optical probe passes through said micro tube to said second end;

a reagent pad comprising a flat membrane material impregnated with a dried reagent solution that comprises optical properties that change with the quantity of the analyte, said flat membrane material cut in a circular shape with a second diameter matching said first diameter and further comprising a first flat surface for contacting the sample volume and a second flat surface, wherein a size of the sample volume required for testing can be minimized; and

means for fixing said second side to said second end where light from the optical probe impinges on said second side and a reflected light indicating changes in said optical properties is effectively returned through the optical probe to the photometrical detector where the quantity of the analyte in the minimized size of the sample volume can be measured.

148. (New) The device as recited in claim 147, wherein the optical probe is removably inserted into said first open end and the test tip device is disposable.

149.(New) The device as recited in claim 147, wherein said change in optical properties is a color change.

150.(New) The device as recited in claim 147, wherein said flat membrane material further comprises a uniformly porous hydrophilic membrane.

151. (New) The device as recited in claim 147, wherein said reagent solution further comprises oxidase/peroxidase enzymes.

152. (New) The device as recited in claim 147, wherein the minimized size of the sample volume can be measured in an in vitro blood glucose self-monitoring system.